



## REMARKS

The Examiner's Office Action of February 4, 2003 has been received and its contents reviewed. The Examiner is thanked for the review and consideration of the present application.

By the above actions, claim 1, 4, 9 and 10 has been amended, claim 7 cancelled, and new claim 13<sup>19</sup> added. Accordingly, claims 1, 3-4, 6, 9-10, and 12<sup>19</sup>/<sub>13</sub> are pending for consideration, of which claims 1, 4, 10, and 13<sup>19</sup> are independent. In view of these actions and the following remarks, reconsideration of this application is now requested.

Referring now to the detailed Office Action, claims 1, 3-4 and 6 are rejected under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Further, claims 1, 3-4 and 6 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Particularly, the Examiner asserts that the feature of "fluorocarbon gas alone" in the claims is not supported by the specification, and that it is unclear whether the gas alone excluding any other inert gases or mixture of fluorocarbon gases or only one fluorocarbon gas is introduced in the reaction chamber. In response, Applicant has amended the claims, as shown above, to delete the word "alone" and to clarify the step of introducing an etching gas composed of a fluorocarbon.

Claims 1, 3-4, and 6 are rejected under 35 U.S.C. §103(a) as unpatentable over Inazawa et al. (U.S. Patent No. 5,595,627 – hereafter Inazawa) in view of Yanagida (U.S. Patent No. 5,338,399). Further, claims 7, 9, 10 and 12 are rejected under 35 U.S.C. §103(a) as being unpatentable over Nguyen et al. (U.S. Patent No. 5,244,730 – hereafter Nguyen) in view of Mountsier et al. (U.S. Patent No. 6,184,572 – hereafter Nguyen). These rejections are respectfully traversed at least for the reasons provided below.

With respect to amended claim 1, the claim recites a plasma processing method comprising the steps of: placing a substrate inside a reaction chamber of a plasma processing system, a silicon dioxide film and a resist pattern having been formed in order on the surface of the substrate; introducing an etching gas composed of a fluorocarbon gas into the reaction chamber, wherein the fluorocarbon gas is composed of at least one

of  $C_4F_6$ ,  $C_5F_8$ , and  $C_6F_6$  gases; and creating a plasma from the etching gas and etching the silicon dioxide film with the plasma and using the resist pattern as a mask, wherein a residence time  $\tau$  of the fluorocarbon gas in the reaction chamber is controlled at a value greater than 0.1 sec and equal to or less than 1 sec, the residence time  $\tau$  being given by  $P \times V/Q$ , where P is a pressure (unit: Pa) of the fluorocarbon gas, V is a volume (unit: L) of the reaction chamber and Q is a flow rate (unit: Pa · L/sec) of the fluorocarbon gas.

On the other hand, with respect to Yanagida, the reference teaches etching a silicon dioxide film using an etching gas composed of a fluorocarbon gas composing  $CF_4$  and  $C_6F_6$ .

With respect to Inazawa, the reference teaches, in column 8, lines 14-24, that in the case of using a gas mixture of a fluorocarbon gas composing  $C_4F_8$  and CO and Ar, and other gases, the etching selection ratio of  $SiO_2/SiN$  increases when the residence time of the process is decreased, as shown in Figs. 4 and 5 of Inazawa. The object of the invention in Inazawa is to prevent the problems that occur during the forming of a self aligning contact and the like, and thus the etching selection ratio of  $SiO_2/SiN$  is increased. Hence, the target material for etching is different between Inazawa and the present invention, in which the etching selection ratio of the silicon dioxide film/resist is increased. (

Further, Inazawa merely discloses that only in the case of using a gas mixture of a fluorocarbon gas composing  $C_4F_8$ , CO and Ar, and other gases, the etching selection ratio of  $SiO_2/SiN$  can be increased by decreasing the residence time. However, Inazawa fails to disclose that the selection ratio can be increased in the case of using other etching gases and other target materials to be etched.

Generally, the etching phenomenon of plasma etching involves complicated interactions between the film to be etched and the etching gas, and it is well known to one skilled in the art that it is not always necessary that the selection ratio can be increased by decreasing the residence time, even though the type of etching gas and the material to be etched are different.

Hence the combination of Inazawa and Yanagida does not render the amended claim 1 of the present invention obvious.

With respect to amended claim 4, the claim recites a plasma processing method comprising the steps of: placing a substrate inside a reaction chamber of a plasma processing system, a silicon dioxide film having been formed on the surface of the

substrate; introducing an etching gas composed of a fluorocarbon gas into the reaction chamber, wherein the fluorocarbon gas is composed of at least one of C<sub>4</sub>F<sub>6</sub>, C<sub>5</sub>F<sub>8</sub>, and C<sub>6</sub>F<sub>6</sub> gases; and creating a plasma from the etching gas and etching the silicon dioxide film with the plasma and using the resist pattern as a mask, wherein P×W<sub>0</sub>/Q is controlled at a value greater than 0.8×10<sup>4</sup> sec • W/m<sup>3</sup> and equal to or less than 8×10<sup>4</sup> sec • W/m<sup>3</sup>, P×W<sub>0</sub>/Q being a product of a residence time  $\tau$  of the fluorocarbon gas in the reaction chamber and a power density P<sub>i</sub> of power applied to create the plasma, the residence time  $\tau$  being given by P×V/Q, where P is a pressure (unit: Pa) of the fluorocarbon gas, V is a volume (unit: L) of the reaction chamber and Q is a flow rate (unit: Pa • L/sec) of the fluorocarbon gas, the power density P<sub>i</sub> being given by W<sub>0</sub>/V, where W<sub>0</sub> is a magnitude (unit: W) of the power and V is the volume (unit: L) of the reaction chamber.

According to the amended claim 4, when etching the silicon dioxide film using the etching gas composed of a fluorocarbon gas, the etching selection ratio of the dioxide film/resist and the like can be increased by controlling P×W<sub>0</sub>/Q, which is a product of the residence time and the power density, instead of the residence time of the gas. By using this parameter, since consideration of the differences in volume V of the reaction chambers due to the differences in dry etching apparatuses is not required, the selection ratio can be increased regardless of the types of dry etching apparatuses.

As discussed above, Inazawa discloses that in the case of using a gas mixture of a fluorocarbon gas composing C<sub>4</sub>F<sub>8</sub>, CO and Ar, and other gases, the etching selection ratio of SiO<sub>2</sub>/SiN can be increased by decreasing the residence time. /

On the other hand, according to the presently claimed invention, by controlling the parameter of P×W<sub>0</sub>/Q, which is a combination of power, gas pressure and gas flow according to the product of the residence time and the power density, instead of the residence time, not only the etching selection ratio, but any etching apparatus can be controlled regardless of the volume V of the reaction chamber. - This is because the parameter does not involve V. Moreover, the same result can be achieved by controlling the parameter as by controlling the residence time. Please refer to Figs. 3 and 6 which show experiment results related to the selection ratio of the dioxide film/resist. ↙

Inazawa discloses, in column 8, lines 36-42, adjusting the residence time with continuous application of an RF voltage. However, Applicant respectfully asserts that Inazawa completely fails to disclose or suggest the parameter of P×W<sub>0</sub>/Q, which is independent of volume, and using the parameter to control the etching selection ratio. ↙

Since Inazawa fails to disclose  $P \times W_0/Q$ , the combination of Inazawa and Yanagida in the rejection of claim 4 is improper.

With respect to amended claim 10, the claim recites a plasma processing method comprising the steps of: placing a substrate inside a reaction chamber of a plasma processing system; introducing a fluorocarbon gas into the reaction chamber, wherein the fluorocarbon gas is composed of at least one of  $C_4F_6$ , and  $C_5F_8$  and  $C_6F_6$  gases; and creating a plasma from the fluorocarbon gas and depositing an organic film on the substrate using the plasma, wherein  $P \times W_0/Q$  is controlled at  $0.8 \times 10^4 \text{ sec} \cdot W/m^3$  or less,  $P \times W_0/Q$  being a product of a residence time  $\tau$  of the fluorocarbon gas and a power density  $P_i$  of power applied to create the plasma, the residence time  $\tau$  being given by  $P \times V/Q$ , where  $P$  is a pressure (unit: Pa) of the fluorocarbon gas,  $V$  is a volume (unit: L) of the reaction chamber and  $Q$  is a flow rate (unit:  $\text{Pa} \cdot \text{L/sec}$ ) of the fluorocarbon gas, the power density  $P_i$  being given by  $W_0/V$ , where  $W_0$  is a magnitude (unit: W) of the power and  $V$  is the volume (unit: L) of the reaction chamber.

Accordingly, in the case of depositing an organic film on a dioxide film, the depositing speed can be increased by controlling the parameter of  $P \times W_0/Q$ , which is a product of the residence time and the power density, instead of the residence time of the gas, regardless of the volume  $V$  of the reaction chamber in a plasma treatment apparatus, and thus any plasma treatment apparatus.

Nguyen, on the other hand, teaches the specific values of a high frequency power, a power density, a gas pressure during deposition, a fluorocarbon gas flow and a residence time of the gas used in an organic film depositing step that uses a plasma treatment apparatus. However, Nguyen completely fails to disclose combining the above values to obtain the parameter of  $P \times W_0/Q$ , which is independent of the volume of the plasma treatment apparatus, and increasing the deposition speed of the organic film by controlling the parameter instead of the residence time of the gas, regardless of any plasma treatment apparatus.

Similar to Nguyen, Mountsier also fails to disclose the above. Hence, the combination of Nguyen and Mountsier is improper.

With respect to new claim 13, the claim recites a plasma processing method comprising the steps of: placing a substrate inside a reaction chamber of a plasma processing system, a silicon dioxide film having been formed on the surface of the substrate; introducing a first fluorocarbon gas into the reaction chamber, wherein the first

fluorocarbon gas is composed of at least one of C<sub>4</sub>F<sub>6</sub>, C<sub>5</sub>F<sub>8</sub>, and C<sub>6</sub>F<sub>6</sub> gases; creating a first plasma from the first fluorocarbon gas and etching the silicon dioxide film with the first plasma; introducing a second fluorocarbon gas into the reaction chamber, wherein the second fluorocarbon gas is composed of at least one of C<sub>4</sub>F<sub>6</sub>, C<sub>5</sub>F<sub>8</sub>, and C<sub>6</sub>F<sub>6</sub> gases; and creating a second plasma from the second fluorocarbon gas and depositing an organic film on the silicon dioxide film with the second plasma, wherein a residence time  $\tau$  of the first fluorocarbon gas in the reaction chamber is controlled at a value greater than 0.1 sec and equal to or less than 1 sec, the residence time  $\tau$  being given by  $P \times V / Q$ , where P is a pressure (unit: Pa) of the first fluorocarbon gas, V is a volume (unit: L) of the reaction chamber and Q is a flow rate (unit: Pa · L/sec) of the first fluorocarbon gas, and wherein a residence time  $\tau$  of the second fluorocarbon gas in the reaction chamber is controlled at a value equal to or less than 0.1 sec, the residence time  $\tau$  being given by  $P \times V / Q$ .

Accordingly, by changing the residence time of the first and second fluorocarbon gases within different ranges, continuous steps of, for example, etching the dioxide film having high selection ratio and depositing the organic film on the dioxide film at a high speed can be achieved.

On the other hand, Nguyen teaches introducing fluorocarbon gas C<sub>4</sub>F<sub>8</sub> and depositing an organic film using a plasma process having a residence time of a gas set at 0.9 sec. Mountsier teaches using a fluorocarbon gas C<sub>6</sub>F<sub>6</sub> to deposit an organic film (fluorocarbon). Although Nguyen discloses setting the residence time of the gas to a fixed value, both cited references are related to the deposition of organic film. Hence, both cited references are different from the present invention, in which continuous steps of etching the dioxide film having high selection ratio and depositing the organic film on the dioxide film at a high speed can be achieved by changing the residence time of the first and second fluorocarbon gases within different ranges.

Moreover, both Nguyen and Mountsier fail to disclose or suggest changing between the etching mode and the depositing mode according to the fixed value of the fluorocarbon gas residence time as recited in claim 13. Hence the combination of Nguyen and Mountsier does not render the new claim 13 of the present invention obvious.

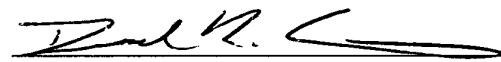
In response to the Official Notice taken by the Examiner in page 6 of the Office Action with respect to Nguyen, Examiner is respectfully requested to provide support for this assertion in accordance with MPEP 2144.03 (pp. 2100-129 and 2100-130, Aug. 2001) and

with the Memorandum from the Deputy Commissioner for Patent Examination Policy, Steve Kunin, which is titled *Procedures for Relying on Facts Which are Not of Record as Common Knowledge or for Taking Official Notice* and is attached herewith for the Examiner's reference.

In view of the amendments and arguments set forth above, Applicant respectfully request reconsideration and withdrawal of all pending rejections.

While the present application is now believed to be in condition for allowance, should the Examiner find some issue to remain unresolved, or should any new issues arise which could be eliminated through discussions with Applicants' representative, then the Examiner is invited to contact the undersigned by telephone in order that the further prosecution of this application can thereby be expedited.

Respectfully submitted,



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Date: February 21, 2002

To: Patent Examining Corps  
Technology Center Directors

From: Stephen G. Kunin  
Deputy Commissioner for Patent Examination Policy

Subject: Procedures for Relying on Facts Which are Not of Record as  
Common Knowledge or for Taking Official Notice

This memorandum clarifies the circumstances in which it is appropriate to take official notice of facts not in the record or to rely on "common knowledge" in making a rejection.

Recent court decisions have affected the Office's practice of taking official notice of facts by relying on common knowledge in the art without a reference. Specifically, the Supreme Court recently changed the standard of review applied to decisions of the Board of Patent Appeals and Interferences and the Trademark Trial and Appeal Board on appeal to the U.S. Court of Appeals for the Federal Circuit. *Dickinson v. Zurko*, 527 U.S. 150, 50 USPQ2d 1930 (1999). As a result, the Federal Circuit now reviews findings of fact under the "substantial evidence" standard under the Administrative Procedure Act (APA), rather than the former "clearly erroneous" standard. *In re Gartside*, 203 F.3d 1305, 1315, 53 USPQ2d 1769, 1775 (Fed. Cir. 2000).<sup>1</sup> This change in the review standard has affected the Federal Circuit's view of when the court or the USPTO may take notice of facts without specific documentary evidence support.<sup>2</sup>

On remand from the Supreme Court, the Federal Circuit in *In re Zurko*, 258 F.3d 1379, 59 USPQ2d 1693 (Fed. Cir. 2001), reversed the Board's decision upholding a rejection under 35 U.S.C. 103 for lack of substantial evidence. Specifically, in *Zurko* and other recent decisions, the court criticized the USPTO's reliance on "basic knowledge" or "common sense" to support an obviousness rejection, where there was no evidentiary support in the record for such a finding.<sup>3</sup> In light of the recent Federal Circuit decisions and the substantial evidence standard of review now applied to USPTO Board decisions, the following guidance is provided in order to assist the examiners in determining when it is appropriate to take official notice of facts without

supporting documentary evidence or to rely on common knowledge in the art in making a rejection, and if such official notice is taken, what evidence is necessary to support the examiner's conclusion of common knowledge in the art.

(1) Determine when it is appropriate to take official notice without documentary evidence to support the examiner's conclusion.

Official notice without documentary evidence to support an examiner's conclusion is permissible only in some circumstances. While "official notice" may be relied on, as noted in MPEP § 2144.03, these circumstances should be rare when an application is under final rejection or action under 37 CFR 1.113. Official notice unsupported by documentary evidence should only be taken by the examiner where the facts asserted to be well-known, or to be common knowledge in the art are capable of instant and unquestionable demonstration as being well-known.<sup>4</sup> In appropriate circumstances, it might not be unreasonable to take official notice of the fact that it is desirable to make something faster, cheaper, better, or stronger without the specific support of documentary evidence. Furthermore, it might not be unreasonable for the examiner in a first Office action to take official notice of facts by asserting that certain limitations in a dependent claim are old and well known expedients in the art without the support of documentary evidence provided the facts so noticed are of notorious character and serve only to "fill in the gaps" which might exist in the evidentiary showing made by the examiner to support a particular ground of rejection.<sup>5</sup>

It would not be appropriate for the examiner to take official notice of facts without citing a prior art reference where the facts asserted to be well known are not capable of instant and unquestionable demonstration as being well-known. For example, assertions of technical facts in the areas of esoteric technology or specific knowledge of the prior art must always be supported by citation to some reference work recognized as standard in the pertinent art.<sup>6</sup>

It is never appropriate to rely solely on "common knowledge" in the art without evidentiary support in the record, as the principal evidence upon which a rejection was based.<sup>7</sup> As the court held in *Zurko*, an assessment of basic knowledge and common sense that is not based on any evidence in the record lacks substantial evidence support.<sup>8</sup>

(2) If official notice is taken of a fact, unsupported by documentary evidence, the technical line of reasoning underlying a decision to take such notice must be clear and unmistakable.

Ordinarily, there must be some form of evidence in the record to support an assertion of common knowledge.<sup>9</sup> In certain older cases, official notice has been taken of a fact that is asserted to be "common knowledge" without specific reliance on documentary evidence where the fact noticed was readily verifiable, such as when other references of record supported the noticed fact, or where there

was nothing of record to contradict it.<sup>10</sup> If such notice is taken, the basis for such reasoning must be set forth explicitly. The examiner must provide specific factual findings predicated on sound technical and scientific reasoning to support his or her conclusion of common knowledge.<sup>11</sup> The applicant should be presented with the explicit basis on which the examiner regards the matter as subject to official notice and be allowed to challenge the assertion in the next reply after the Office action in which the common knowledge statement was made.

(3) If applicant challenges a factual assertion as not properly officially noticed or not properly based upon common knowledge, the examiner must support the finding with adequate evidence.

To adequately traverse such a finding, an applicant must specifically point out the supposed errors in the examiner's action, which would include stating why the noticed fact is not considered to be common knowledge or well-known in the art.<sup>12</sup> A general allegation that the claims define a patentable invention without any reference to the examiner's assertion of official notice would be inadequate. If applicant adequately traverses the examiner's assertion of official notice, the examiner must provide documentary evidence in the next Office action if the rejection is to be maintained.<sup>13</sup> If the examiner is relying on personal knowledge to support the finding of what is known in the art, the examiner must provide an affidavit or declaration setting forth specific factual statements and explanation to support the finding. See 37 CFR 1.104(d)(2).

If applicant does not traverse the examiner's assertion of official notice or applicant's traverse is not adequate, the examiner should clearly indicate in the next Office action that the common knowledge or well-known in the art statement is taken to be admitted prior art because applicant either failed to traverse the examiner's assertion of official notice or that the traverse was inadequate. If the traverse was inadequate, the examiner should include an explanation as to why it was inadequate.

(4) Determine whether the next Office action should be made final.

If the examiner adds a reference in the next Office action after applicant's rebuttal, and the newly cited reference is added only as directly corresponding evidence to support the prior common knowledge finding, and it does not result in a new issue or constitute a new ground of rejection, the Office action may be made final. If no amendments are made to the claims, the examiner must not rely on any other teachings in the reference if the rejection is made final. If the newly cited reference is added for reasons other than to support the prior common knowledge statement and a new ground of rejection is introduced by the examiner that is not necessitated by applicant's amendment of the claims, the rejection may not be made final. See MPEP § 706.07(a).

(5) Summary.

Any rejection based on assertions that a fact is well-known or is common knowledge in the art without documentary evidence to support the examiner's conclusion should be judiciously applied. Furthermore, as noted by the court in *Ahlert*, any facts so noticed should be of notorious character and serve only to "fill in the gaps" in an insubstantial manner which might exist in the evidentiary showing made by the examiner to support a particular ground for rejection. It is never appropriate to rely solely on common knowledge in the art without evidentiary support in the record as the principal evidence upon which a rejection was based.<sup>14</sup>

MPEP § 2144.03 will be revised accordingly in the upcoming revision to be consistent with this memo.

Cc: Nicholas Godici  
Esther Kepplinger  
Kay Kim  
David Lacey

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<sup>1</sup> The Supreme Court has described substantial evidence review in the following manner:

Substantial evidence is more than a mere scintilla. It means such relevant evidence as a reasonable mind might accept as adequate to support a conclusion...Mere uncorroborated hearsay or rumor does not constitute substantial evidence.

*Consolidated Edison Co. v. NLRB*, 305 U.S. 197, 229-30 (1938)(quoted in *Gartside*, 203 F.3d at 1312, 53 USPQ2d at 1773). "'Substantial evidence' review involves examination of the record as a whole, taking into account evidence that both justifies and detracts from an agency's decision." *Gartside*, 203 F.3d at 1312, 53 USPQ2d at 1773 (citing *Universal Camera Corp. v. NLRB*, 340 U.S. 474, 487-88 (1951)). Furthermore, the Supreme Court has also recognized that "the possibility of drawing two inconsistent conclusions from the evidence does not prevent an administrative agency's finding from being supported by substantial evidence." *Consolo v. Federal Maritime Comm'n*, 383 U.S. 607, 620 (1966) (quoted in *Gartside*, 203 F.3d at 1312, 53 USPQ2d at 1773).

<sup>2</sup> See *Packard Press, Inc. v. Hewlett-Packard Co.*, 227 F.3d 1352, 1360, 56 USPQ2d 1351, 1356 (Fed. Cir. 2000) (questioning authority to take judicial notice for the first time on appeal in light of the APA standard of review established by *Dickinson v. Zurko*, 527 U.S. at 165, 50 USPQ2d at 1937). Although the substantial evidence standard is deferential to the agency's decision, it imposes certain evidentiary requirements that must be met by the agency in formulating a decision. The Federal Circuit explained that "[i]n appeals from the Board, we have before us a comprehensive record that contains the arguments and evidence presented by the parties, including all of the relevant information upon which the board relied in rendering its decision." *Gartside*, 203 F.3d at 1314, 53 USPQ2d at 1774. Furthermore, the record is "closed, in that the Board's decision must be justified within the four corners of that record." *Id.* Thus, the record before the USPTO "dictates the parameters of review" available to the court. *Id.* Accordingly, "the Board's opinion must explicate its factual conclusions, enabling [the court] to verify readily whether those conclusions are indeed supported by 'substantial evidence' contained within the record." *Id.* (citing *Gechter v. Davidson*, 116 F.3d 1454, 1460, 43 USPQ2d 1030, 1035 (Fed. Cir. 1997)).

<sup>3</sup> *Zurko*, 258 F.3d at 1385, 59 USPQ2d 1697 ("the Board cannot simply reach conclusion based on its own understanding or experience—or on its assessment of what would be basic knowledge or common sense. Rather, the Board must point to some concrete evidence in the record in support of these findings."). See also *In re Lee*, \_\_F.3d\_\_, \_\_, 61 USPQ2d 1430, 1434 (Fed. Cir. 2002) (The Board determined that it was not necessary to present a source of a teaching, suggestion, or motivation to combine the references

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because the conclusion of obviousness may be made from common knowledge and common sense of a person of ordinary skill in the art. The court reversed the Board's decision in sustaining a rejection under 35 U.S.C. 103 and stated that "'common knowledge and common sense' on which the Board relied in rejecting Lee's application are not the specialized knowledge and expertise contemplated by the Administrative Procedure Act. Conclusory statements such as those here provided do not fulfill the agency's obligation...The board cannot rely on conclusory statements when dealing with particular combinations of prior art and specific claims, but must set forth the rationale on which it relies").

<sup>4</sup> As noted by the court in *In re Ahlert*, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970), the notice of facts beyond the record which may be taken by the examiner must be "capable of such instant and unquestionable demonstration as to defy dispute" (citing *In re Knapp Monarch Co.*, 296 F.2d 230, 132 USPQ 6 (CCPA 1961)). In *Ahlert*, the court held that the Board properly took judicial notice that "it is old to adjust intensity of a flame in accordance with the heat requirement." See also *In re Fox*, 471, F.2d 1405, 1407, 176 USPQ 340, 341 (CCPA 1973) (the court took "judicial notice of the fact that tape recorders commonly erase tape automatically when new 'audio information' is recorded on a tape which already has a recording on it").

<sup>5</sup> *Zurko*, 258 F.3d at 1385, 59 USPQ2d at 1697; *In re Ahlert*, 424 F.2d at 1092, 165 USPQ at 421.

<sup>6</sup> *In re Ahlert*, 424 F.2d at 1091, 165 USPQ at 420-21. See also *In re Grose*, 592 F.2d 1161, 1167-68, 201 USPQ 57, 63 (CCPA 1979) ("[w]hen the PTO seeks to rely upon a chemical theory, in establishing a prima facie case of obviousness, it must provide evidentiary support for the existence and meaning of that theory."); *In re Eynde*, 480 F.2d 1364, 1370, 178 USPQ 470, 474 (CCPA 1973) ("we reject the notion that judicial or administrative notice may be taken of the state of the art. The facts constituting the state of the art are normally subject to the possibility of rational disagreement among reasonable men and are not amenable to the taking of such notice.").

<sup>7</sup> *Zurko*, 258 F.3d at 1385, 59 USPQ2d at 1697. While the court explained that, "as an administrative tribunal the Board clearly has expertise in the subject matter over which it exercises jurisdiction," it make clear that such "expertise may provide sufficient support for conclusions [only] as to peripheral issue." *Id.* at 1385-86, 59 USPQ2d at 1697.

<sup>8</sup> *Zurko*, 258 F.3d at 1385, 59 USPQ2d at 1697. See also *In re Lee*, \_\_\_F.3d at \_\_\_, 61 USPQ2d at 1435.

<sup>9</sup> See *In re Lee*, \_\_\_F.3d at \_\_\_, 61 USPQ2d 1434-35; *In re Zurko*, 258 F.3d at 1386, 59 USPQ2d at 1697 (holding that general conclusions concerning what is "basic knowledge" or "common sense" to one of ordinary skill in the art without specific factual findings and some concrete evidence in the record to support these findings will not support an obviousness rejection).

<sup>10</sup> See *In re Soli*, 317 F.2d 941, 945-46, 137 USPQ 797, 800 (CCPA 1963) (the court accepted the examiner's assertion that the use of "a control is standard procedure throughout the entire field of bacteriology" because it was readily verifiable and disclosed in references of record not cited by the Office); *In re Chevenard*, 139 F.2d 711, 713, 60 USPQ 239, 241 (CCPA 1943) (accepting examiner's finding that a brief heating at a higher temperature was the equivalent of a longer heating at a lower temperature where there was nothing in the record to indicate the contrary and where the applicant never demanded that the examiner produce evidence to support his statement).

<sup>11</sup> See *Soli*, 317 F.2d at 946, 37 USPQ at 801; *Chevenard*, 139 F.2d at 713, 60 USPQ at 241.

<sup>12</sup> See 37 CFR 1.111(b). See also *Chevenard*, 139 F.2d at 713, 60 USPQ at 241 ("[I]n the absence of any demand by appellant for the examiner to produce authority for his statement, we will not consider this contention.").

<sup>13</sup> See 37 CFR 1.104(c)(2). See also *Zurko*, 258 F.3d at 1386, 59 USPQ2d at 1697 ("the Board [or examiner] must point to some concrete evidence in the record in support of these findings" to satisfy the substantial evidence test).

<sup>14</sup> See *Zurko*, 258 F.3d at 1386, 59 USPQ2d at 1697; *Ahlert*, 424 F.2d at 1092, 165 USPQ 421.